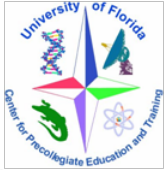


EMPLOY FLORIDA
BANNER Center
Biotechnology

Newsletter

Volume 1, Issue 1

Spring, 2008



Banner Center for Biotechnology Kicks off Second Year!

The Employ Florida BANNER Center for Biotechnology is a state-wide collaborative effort formed with members from the following institutions: the University of Florida's Center of Excellence for Regenerative Health Biotechnology (CERHB), UF's Center for Pre-collegiate Education and Training (CPET), Santa Fe Community College (SFCC), Florida Community College at Jacksonville (FCCJ), Indian River Community College (IRCC),

Embry-Riddle Aeronautical University (ERAU), and the International Society for Pharmaceutical Engineering (ISPE). We serve as a resource center for Biotechnology education and training within the State of Florida. Together we are creating and delivering industry-approved curricula in Industrial Biotechnology for workforce training. We have formed partnerships with industry, state and local government agencies, and educational insti-

tutions to assure course relevance, promote the new curricula, and maintain communication between all stakeholders.

Entering our second year, we hope to bring Palm Beach Community College (PBCC) and Miami Dade College into our network! We are also looking forward to expanding our course offerings to effectively address the needs of Florida's rapidly expanding biotechnology-based industry!

Inside this issue:

<i>Training Partners</i>	2
<i>Banner Center Courses & Success Stories</i>	3
<i>Opportunities for HS students & Teachers</i>	4
<i>Alachua County Workforce & Economic Development</i>	5
<i>Economic Development: Metro Orlando & Palm Beach County</i>	6
<i>New Curriculum</i>	7
<i>Upcoming Events & Contact Information</i>	8

Biotechnology Industry Focus Group You are Invited! May 9th, 12:00-3:00 PBCC's New BioScience Technology Complex (Rm. SCI27)

Join us for lunch, networking, and lively discussion surrounding current and future trends influencing industrial biotechnology, the skills and knowledge sets critical for

your workforce, and optimal delivery methods for workforce training! Your involvement is critical to the development of our programs, to ensure that we meet your needs.

Please RSVP to either:
Libby Handel
handele@pbcc.edu
or
Tammy Mandell
tmandell@cerhb.ufl.edu

Spotlight on Banner Center Training Partners

Florida Community College at Jacksonville

Four students completed FCCJ's Biotechnology Laboratory Technician program during spring term, 2008 with internships at Mayo Clinic in Jacksonville. Three graduates are working full time on advanced degrees, and five are employed in industry positions such as pharmaceutical development, breast cancer research, neuroscience research and process control.

There are seventeen students in the next cohort of degree candidates, approximately twelve are expected to enroll in the summer course, Biotechnology Methods II. Inquiries for the new biotechnology cohort forming in the fall are up over last year, with

questions and requests for tours beginning much earlier this year. Approximately 22 students may enroll in the biotechnology series of classes during fall term 2009, about a 300% increase over the first cohort in the fall of 2005.



Santa Fe Community College, Gainesville

The Biotechnology Laboratory Technology Program at SFCC provides for new career opportunities through enhanced science and technical education. The curriculum and facilities were established with guidance from local employers. The program provides a sound basis for baccalaureate and graduate education by giving students hands on biotechnology laboratory experience. Upon completion, stu-



dents may earn an Associate in Science degree and/or an Advanced Technical Certificate in Biotechnology Manufacturing. Graduates are prepared for entry-level employment as laboratory or quality control technicians, competent in preparing solutions and reagents, operating scientific instrumentation, preparing samples for analysis, using recombinant DNA techniques, culturing mammalian cells, purifying and/or characterizing DNA and proteins. In 2002, SFCC graduated

7 students in the first class of Biotechnology Laboratory Technicians. Since 2004, the program has graduated an average of 13 students per year, with a similar cohort expected in 2008. Today, approximately 55 students declare Biotechnology Laboratory Technology as their major. Graduates are rapidly hired by the industry, including RTI Biologics Inc., Pasteuria Biosciences, St. Charles Pharmaceuticals, and Applied Genetics Technology Corporation.

Indian River Community College, Fort Pierce

The education provided by Indian River Community College, soon to be Indian River College, plays a key role in economic development along the "Research Coast" region of Florida for the growing bioscience industry. IRCC is actively engaged in initiatives and partnerships, from elementary school through post-Baccalaureate training, to promote interest in the life sciences and prepare for the future of bioscience. Students taking courses in Indian River's new Associate of Arts degree pro-

gram in Biotechnology become familiar with diverse career paths and gain hands-on experience in IRCC's new sophisticated biotechnology laboratory. A Career Forum on bioscience will be held on Thursday, April 17th at 11:00 a.m. in the Science Center Auditorium at the Main Campus in Fort Pierce. For more information, contact the IRCC at 1-866-866-4722.

The new Florida State University Regional Medical Center located on IRCC's Main Campus is scheduled to open June, 2008.

It will house IRCC's new state of the

art Biotechnology and Bioinformatics Labs, and will serve as the center for bioscience programs at Indian River. These lab facilities will allow students to gain knowledge through challenging and cutting edge curriculum offerings as well as internships in businesses throughout our service region.



Courses in Demand- “Introduction to Industrial Biotechnology: Working in a Regulated Environment”

“Individuals with the understanding and skills to work in a controlled environment” was the feedback we received from companies outlining their employee requirements. Based on input from our statewide focus groups and formal Needs Assessment, we developed entry-level curricula for instruction and hands-on experience in biotechnology-based industry Processes & Facilities, Quality Systems, and Regulatory Affairs.

The high demand of these unique courses demonstrates the need by Florida's Biotechnology Industry for employees versant in these topics. - Dr. Richard Snyder, Director of UF's Center of Excellence for Regenerative Health Biotechnology

Twenty-five lectures with corresponding wet lab exercises were matched to on-line modules.

The extensive documentation that is required and maintained

in this highly regulated industry was also prepared and incorporated into the state-of-the-art

“Year 1” curricula. Forty hours of combined on-line, lecture, and wet lab training followed by an

exam lead to an industry recognized certificate. The courses were offered twice at each of the three sites (Gainesville, Jacksonville, and Fort Pierce) during May and June 2007. Seventy-five enrollees were anticipated, however, 166 applications were received, with 122 available slots, from which 92 students received certificates.

“Introduction to Industrial Biotechnology” will continued to be offered throughout the state. Please visit our website for future course offerings:

http://cerhb.rgp.ufl.edu/education_index.html

Banner Center for Biotechnology Success Story!

Ed Drannbauer was a graduate student at the University of Florida when he learned about the Banner Center for Biotechnology’s “Introduction to Industrial Biotechnology” course. According to Ed; “I’ve always had an interest in industrial biotechnology, and saw this course as

an opportunity to get exposure to the field and expand my horizons.” He completed the course in June of 2007. In August, he was offered



a position as a project manager at Florida Biologix. Concepts learned in the course helped him with his new position and in January 2008, he was promoted to Facility Manager at Florida Biologix; a Phase I and II cGMP drug product manufacturing facility.

Workforce Training Leads to Favorable Outcomes

Graduates showed a strong sense of satisfaction and accomplishment in the education they received. “The Banner Center for Biotechnology training helped give me a career boost in my field,” said student Robert

Chapman, who currently works as a chemist at Mayo Clinic in Jacksonville. Another student, Matthew Lazar, said his only regret is that he wished the two-week course were longer. Lazar is currently a full-time student

at the University of Florida. Anya Hylton, a technician at the Florida-Georgia Blood Alliance, was equally enthusiastic. “It’s a great addition to my resumé”, she said.

New Industrial Biotechnology Career Path for High School Students

UF's Center of Excellence for Regenerative Health Biotechnology (CERHB) funded by the National Science Foundation (NSF), bridged the expertise of the school boards of Alachua, Marion, and Palm Beach counties, Santa Fe Community College, UF's Center for Precollegiate Education and Training, and the International Society for Pharmaceutical Engineering

(ISPE). We created a state-approved, three-course sequence in Industrial Biotechnology for High School students, incorporating hands-on experience with theoretical knowledge. Graduates will be prepared for entry-level positions in industry or research institutions, articulation into an A.S. degree program, or entrance into a four-year institution. These opportunities pro-

vide a pipeline of skilled employees for our Biotechnology-based industry, attract new industry, and retain innovation from Florida's academic institutions; keeping the talent and the jobs in Florida, which is a key investment in both our students' and state's economic future.



Banner Centers Partner for Student Success!

"Rigor and Relevance" are the new buzz words for learning in the classroom. The new curriculum for Industrial Biotechnology provides both, with its combined offering of Academic and Career & Technical Education credits. Two Florida high schools; Santa Fe

"The new Biotechnology curriculum for High School students is viewed as the Flagship program by the state for combining academic and CTE credit." - Frank Fuller, Director of the Banner Center for Career Academies

High School in Alachua County, and North Marion High School in Marion County, were the first to offer the curriculum in 2007/2008! At least three additional districts are preparing to offer the program in 2008/2009.

Okaloosa County's Banner Center of Excellence for Secondary Career Academies, is working closely with us and St. John's County to establish an Industrial Biotechnology Academy utilizing the CHOICE model. This innovative model focuses on collaborations and partnerships along with rigor and relevance in the curriculum leading to national certifications.

UF's Center for Precollegiate Education & Training offers Research & Training to Teachers

This summer, with funding from the Howard Hughes Medical Institute (HHMI), UCPET will provide 34 teachers from five partnering districts with a two-week Institute to initiate the year-long **Interdisciplinary Center for Ongoing Research / Education (ICORE)** Partnership Program. This inaugural ICORE program is organized around *Emerging Pathogens*. The Institute will focus on

human, animal, and plant pathogens through laboratory investigations using the content and skills of biotechnology, structural biology, bioinformatics, host-parasite interactions, and translational research. ICORE teachers will earn three graduate credits toward a new UF Graduate Certificate in Biotechnology Education. Two SSI workshops are also planned: **Summer Immersion in Sci-**

ence (FL MSP award to Panhandle Area Educational Consortium, 50 teachers) and **Explorations in Life Science**. Teachers will use modern research methods and equipment, which translates to research-related skills and activities for their students, as well as information about academic and industrial career choices. For more information contact Julie Boker: Julie@CPET.UFL.EDU <http://www.cpet.ufl.edu/>

Regional Partnerships for Success!

Biotechnology is alive and well in Florida, and Alachua County is in the driver's seat. In partnership with UF Center of Excellence for Regenerative Healthy Biotechnology (CERHB), the Council for Economic Outreach (CEO) is pleased to be a part of this thriving sector in Gainesville/Alachua County. Each year, biotechnology/biomedical projects continue to climb to new heights at CEO in terms of new project activity. In 2007 alone, biotechnology projects in Alachua County ranked



second in total received proposals. In fact, Alachua County has been designated as a "Biotechnology Hot Spot" by Ernst & Young, the only Florida city with such a distinction. All of this tremendous success is tied to CEO's close partnership with Enterprise Florida's Life Sciences Department, UF, CERHB, Sid Martin Biotechnology Incubator (BDI), Santa Fe Community College (SFCC) and all Alachua County municipalities. "A qualified workforce and innovative training are absolutely critical to site selection, and we're pleased to have the opportunity to showcase both the Em-

ploy Florida Banner Center for Biotechnology and the Center of Excellence. These two programs give Alachua County a clear competitive advantage when vying for biotechnology/biomedical projects" said Brent Christensen, President and Chief Economic Development Officer for the Council for Economic Outreach. Since 2006, CEO has assisted the creation of more than 700 new jobs and \$45 million in capital investments.

David Ramsey, Director of Economic Development, Gainesville, Florida
<http://www.gceo.com>

FloridaWorks

As the Region Nine Regional Workforce Board (one of 24 in the state of Florida), FloridaWorks provides convenient workforce solutions for area employers and job seekers through programs that recruit, train, and retain employees. FloridaWorks plays an integral part in the development of Alachua county's growing biotech industry by supporting, training, and growing our workforce. We are working closely with the Employ Florida

Banner Center for Biotechnology, assisting with the recruitment of students and career placement of graduates. Through the BEST grant,



we provide training dollars to local biotechnology companies as well as partner with the BANNER center to identify other op-

portunities for training and collaboration.

For additional information, please visit – <http://www.floridaworksonline.com/>
<http://www.gainesvillechamber.com/Employment.aspx>

bioOrlando! Collaborating for Metro Orlando's Economic Development

With \$2Billion in new deals in the past 24 months, a fast-emerging life science and biotechnology sector has sprung from Metro Orlando's healthcare system, and is further enhanced by research facilities, business incubators, research parks, and educational programs.

Metro Orlando has also become a hub for specialty pharmaceutical compounding and distribution. The region's life science sector gained atten-



tion when the University of Central Florida received approval to build a College of Medicine --this coming on the heels of announcing its Burnett School of Biomedical Sciences. Together they will provide training for physicians and biomedical researchers, while creating an environment for cutting edge laboratory research leading to treatments for patients. Adding to the momentum, the Burnham Institute for Medical Research has chosen Orlando's Lake Nona as its east coast expansion site.

To provide structured support for the continued acceleration of the life science/biotechnology sector, the Metro Orlando business community conducted focus groups, personal interviews, research, and site visits to life science regions across the country, resulting in the launch of bioOrlando in July of 2007. bioOrlando gives form -- with structure and processes-- to Metro Orlando's collaborative spirit.

*John Fremstad / Vice President
Metro Orlando Economic Development Commission
<http://www.orlandoedc.com>*

Palm Beach County - Florida's Heart of Biotechnology

Palm Beach County is the heart of Florida's emerging life science and biotech center with more than 140 companies focused on the discovery and advancement of drugs and pharmaceuticals, medical devices and equipment, research and testing.

Anchored by two world-class research institutes, Max Planck Institute Florida and Scripps Florida, Palm Beach County is creating a powerful environment where biotech companies expand, relocate and thrive. Strong collaborations exist among local universities and workforce partners as they cre-

ate new biotech-based educational and training opportunities that meet the needs of employers. Proactive assistance programs are available and a wealthy demographic base provides access to philanthropic donors.

Companies say Palm Beach County is an ideal place to take their research discoveries from the lab to the marketplace. The area's strength in biotechnology and biomedical industries can be attributed to its existing re-



search and development infrastructure, top notch educational facilities with robust science and biotechnical programs and the support of

an entrepreneurial environment. Forbes.com ranks Palm Beach County, Florida as #3 on its Top 10 list of "Hotbeds of Tomorrow's Technology."

*Denise Jakows / VP of Marketing and Public Relations
Business Development Board of Palm Beach County*

Curriculum Development for Workforce Training: Help us Help You!

The Employ Florida Banner Center for Biotechnology will continue to develop advanced and specialized hands-on curricula.

The topics to the right were suggested during our Year 1 Focus Groups and formal Needs Assessment. We welcome your input to let us know which topics will be most useful to you or your organization! You may respond to us directly (tmandell@cerhb.ufl.edu), and/or attend one of our focus group meetings.

The first focus group meeting is scheduled for May 9th, from 12:00-3:00 at Palm Beach Community College in the new Bio-Science Technology Complex, Rm. SC127

Suggested Course Topics:

- **Quality Assurance:** GLP, GMP, and GCP compliance, document writing, document control, document auditing, personnel training, quarantine and release, corrective actions, and validation
- **Laboratory and Aseptic Techniques:** cell culture, microscopy, closed systems, media and buffer preparation
- **Cleanroom environments:** Facility design and specifications, environmental monitoring, critical cleaning, and gowning
- **Quality Control analytical assays:** protein-based assays, nucleic acid-based assays, and cell-based assays and analysis, sampling, standards and controls, and validation
- **Downstream processes:** Chromatographic, filtration, and centrifugal methodologies and analysis, and validation
- **Regulatory Affairs:** Federal regulations, working with the FDA, assembling and filing an IND, IDE, or 510K application, clinical trials
- **Business and Legal:** Project management (timelines, budgets, resources, communication), outsourcing, intellectual property protection
- **Laboratory and Facility equipment maintenance:** calibration, metrology, qualification, validation, and preventative maintenance
- **Research & Development, Process Development, and Assay Development**



**UNIVERSITY OF FLORIDA'S CENTER OF
EXCELLENCE FOR REGENERATIVE HEALTH
BIOTECHNOLOGY**

Richard O. Snyder, Ph.D., Director
13706 Innovation Drive
Alachua, Florida 32615

Phone: 386-462-1642
Fax: 386-418-3480
E-mail: rsnyder@cerhb.ufl.edu



Funded by Workforce Florida Inc.

We're on the Web!

[http://cerhb.rgp.ufl.edu/
education_wfi.html](http://cerhb.rgp.ufl.edu/education_wfi.html)

Additional Contact Information

CERHB: Tammy Mandell, Coordinator
Education & Training,
tmandell@cerhb.ufl.edu

ERAU: Tom Cavanagh, Director of On-
line Courses, cavanagt@erau.edu

FCCJ: Kathryn Birmingham, Dean of
Liberal Arts & Sciences,
kbirming@fccj.edu

IRCC: Henri Sue Bynum, Vice Presi-
dent for Academic Affairs,
hbynum@ircc.edu

ISPE: Ali Montes, Director of Training,
Amontes@ISPE.org

SFCC: Linda Nichols; Chair, Health
Science Program,
linda.nichols@sfcc.edu

UF CPET: Mary Jo Koroly, Director,
korolymj@cpet.ufl.edu

Upcoming Events

April 17th - IRCC Career Forum on Bioscience Thurs-
day, 11 a.m. in the Science Center Auditorium at the Main
Campus in Fort Pierce. For more information, contact the
IRCC Information Call Center at 1-866-866-4722

**April 24th- Enterprise Development Corporation
(EDC) 7th Annual Life Science Conference.** 8:00-5:00
at Florida International University; Graham University
Center, Miami, FL <http://www.edc-tech.org>

**May 9th - Banner Center for Biotechnology Focus
Group Meeting.** 12:00-3:00, Palm Beach County Commu-
nity College BioScience Technology Complex, Palm Beach
Gardens Campus, Rm. SC127. Contact Libby Handel
(Director, PBCC Biotechnology Program) handele@pbcc.edu,
or Tammy Mandell (CERHB, Coordinator for Education &
Training) tmandell@cerhb.ufl.edu

May 20th - 5th Annual Celebration of Biotechnology,
BIOFLORIDA Northeast Chapter. 11:00-3:00, Progress
Corporate Park, Alachua, FL www.bioflorida.com

**May 21-24—"Introduction to Industrial Biotechnol-
ogy: Working in a Regulated Environment"** Banner
Center for Biotechnology, 13706 Innovation Dr., Alachua,
FL. Contact Tammy Mandell, tmandell@cerhb.ufl.edu

**June 9-11, July 1-5 - Teacher Training Workshop:
"Industrial Biotechnology II"** 9:00-5:00. Banner Center
for Biotechnology, 13706 Innovation Drive, Alachua, FL.
Contact Tammy Mandell—tmandell@cerhb.ufl.edu

**June 15-18—UF Center for Precollegiate Education &
Training, Interdisciplinary Center for Ongoing Re-
search / Education (ICORE) Partnership Program for HS
Teachers.** Julie Bokor, Julie@CPET.UFL.EDU

**July 14-18 -Teacher Training Workshop: "Industrial
Biotechnology I"** 9:00-5:00, Banner Center for Biotech-
nology, 13706 Innovation Drive, Alachua, FL. Contact
Tammy Mandell—tmandell@cerhb.ufl.edu